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मानक

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IS 5428-2 (1985): Specification for Gauge Glasses, Part 2: Protector Glasses for Tubular Gauge Glasses [MED 17: Chemical Engineering Plants and Related Equipment]



“ज्ञान से एक नये भारत का निर्माण”

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“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

SPECIFICATION FOR GAUGE GLASSES

PART 2 PROTECTOR GLASSES FOR TUBULAR GAUGE GLASSES

(First Revision)

1. Scope — Covers the requirements for the protector glasses for use with tubular gauge glasses.

2. Definitions — For the definitions of various terms used in the glass industry, refer to 2 of IS : 5428 (Part 1) - 1985 'Specification for gauge glasses : Part 1 Tubular glasses for level gauges (first revision)'.
 Chemical Engineering Sectional Committee, EDC 57 : 2 [Ref : Doc : EDC 57 (4127)]

3. Material — The glass of the protector glasses shall be toughened soda-lime or suitably treated borosilicate plate glass. It shall be transparent, perfectly flat on all surfaces, highly polished, free from flows, scratches and any other defect that would interfere with its function or service.

Armour plate glass of the splinter proof type may also be used as an alternative provided it complies with the requirements of this standard. Annealed or chemically toughened glass shall not be used.

3.1 The following properties shall be decided between the purchaser and the manufacturer depending on working conditions and shall be specified along with requisitions.

- a) Chemical resistance to water, acid and alkalies with some minimum limits;
- b) Average co-efficient of thermal expansion;
- c) Chemical composition of glass; and
- d) Tensile and bending strength at ambient and maximum operating temperature.

4. Dimensions — The protector glasses shall preferably be 57 ± 0.5 mm wide and 12 ± 0.5 mm thick.

4.1 The length of protector glasses shall preferably be as specified below with a tolerance in each case of ± 0.8 mm.

Length in mm — 150, 175, 190, 200, 230, 255, 280, 305, 330, 355, 370, 380, 405, 430, 455, 480, 505.

4.2 If specified in the purchase order, the protector glasses may be supplied in sets of three, having an overall tolerance on length of 0.4 mm; and being otherwise in accordance with above sizes given in 4.1.

4.3 Glasses of other dimensions and tolerances are acceptable provided that they comply with the other requirements of this standard.

5. Finish of Edges — The edges of protector glasses shall be bevelled in accordance with one of the designs shown in Fig. 1.

5.1 The finish on edges and bevels shall be by agreement between the purchaser and the supplier.

6. Tests

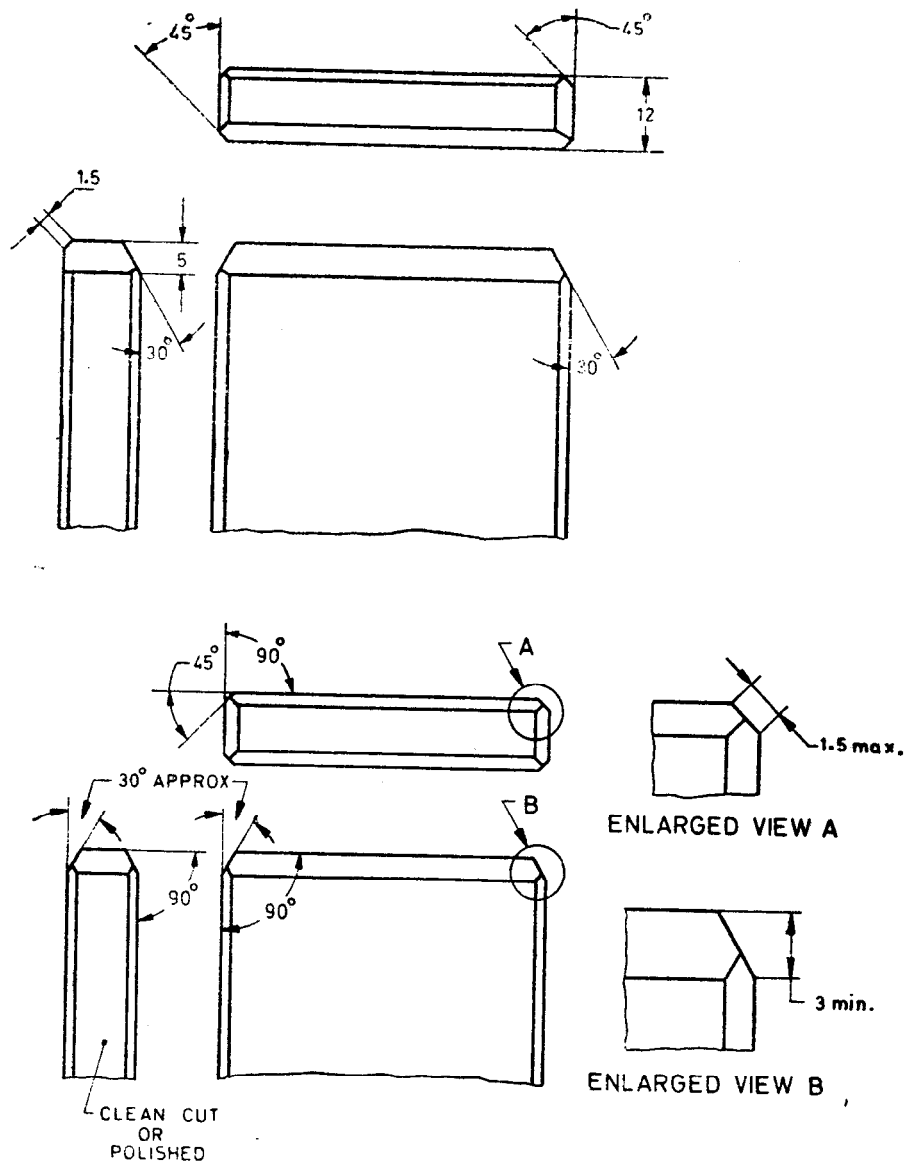
6.1 Dimension Check — The protector glasses shall be checked for conformity to the specified dimensions.

6.2 Inspection Under Polarized Light — Each protector glass shall be examined under polarized light for adequacy of toughening. Any glass which does not show a polarization pattern indicative of toughening shall be rejected.

Adopted 25 June 1985

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All dimensions in millimetres.

FIG. 1 DESIGNS FOR EDGES OF PROTECTOR GLASSES

6.3 Thermal Shock Requirement — Manufacturer shall certify that protector glasses shall pass the thermal shock test and acceptance conditions described in 8.4 of IS : 5428 (Part 1) -1985. During testing, toughened glasses shall enter the water with an observation face parallel to the water surface.

6.4 Hydrostatic Test — The gauge assembly shall be hydrostat-tested at a minimum pressure of $1.5 \times$ Operating pressure \times Allowable stress of glass at ambient temperature/Allowable stress of glass at operating temperature.

7. Sampling — 2 percent of the glasses (but not less than 10 or more than 30 glasses) shall be taken by random selection from each consignment. If more than 10 percent but not more than 20 percent of the glasses in the sample fail the test, a further sample of 2 percent shall be taken by random selection from the consignment and subjected to a second test.

7.1 Glasses subjected to and passing the test may be put into service.

8. Marking — The protector glasses shall be permanently marked with the following:

- a) Manufacturer's identification or trade-mark; and
- b) Size of the protector glass.

8.1 ISI Certification Marking — Details available with the Indian Standards Institution.

8.2 These marks shall not interfere with the function of the glass and shall preferably be placed so as to be visible when mounted.

9. Packing — The glasses shall be packed securely in suitable inner boxes, containing not more than 24 glasses and adequately cased for transit.

EXPLANATORY NOTE

This standard was originally published in 1969 in two parts. The present revision of the standards have been made as a result of further experience gained and development in this field and has been brought out in five parts as follows :

Specification for Gauge Glasses : Part 1 Tubular Glasses for Level Gauge [IS : 5428 (Part 1) 1985] ,

Specification for Gauge Glasses : Part 2 Protector Glasses for Tubular Gauges [IS : 5428 (Part 2) - 1985] ,

Specification for Gauge Glasses : Part 3 Through-vision and Reflex Glasses [IS : 5428 (Part 3) - 1985] ,

Specification for Gauge Glasses : Part 4 Circular Sight and Light Glasses [IS : 5428 (Part 4) - 1985] , and

Specification for Gauge Glasses : Part 5 Port Gauge Glasses as Used in Fittings for Steam Boilers [First Revision of IS : 5428 (Part 5) - 1985] .

In the preparation of this standard, assistance has been derived from BS 3463-1975 Observation and Gauge Glasses for Pressure Vessels, issued by the British Standards Institution.